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ABSTRACT

This condensed article on the language laboratory describes educational and financial possibilities and limitations, often citing the foreign language program at Purdue University as an example. The author discusses: (1) costs and amortization, (2) preventive maintenance, (3) laboratory design, (4) the multichannel recorder, and (5) visuals. Other advantages of the language laboratory are noted. (RL)

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THE LANGUAGE LABORATORY

(Condensed)

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The Language Laboratory for beginning classes is at once the most recent and the most promising development in the field. Thanks to the magnetic tape recorder, whose development it has paralleled, it can do for the spoken language what printing has done for the written language. The possibilities, both educational and financial, are very great.

Educationally, the language laboratory enables all students to speak or "recite" at the same time, just as the book enables them all to read at once. This is in striking contrast to the traditional classroom procedure in which perhaps 25 students recite in turn during the 50 minute period. Assuming that the instructor speaks only half of the time (a charitable assumption!), each student practices his foreign language one minute per class meeting.

In the language laboratory, however, all students are practicing at once, all through the period. And it is not mere "chorus work." Isolated in his semi-soundproof booth, the student hears the prerecorded lesson through his earphones (which also shut out extraneous sounds); in the carefully spaced pauses he speaks into his microphone, imitating, answering questions, responding to various directions. The recorded voice next tells him what he should have said, and then goes on to the next item of drill. After a time, the student is directed to rewind his own tape and replay all that he has said and heard. Already, while speaking, he has—through his earphones—heard himself as others hear him (a chastening new experience made possible by electronics); now his tape recording brings back his own voice in contrasting alternation with "his master's voice."

This is truly a new dimension in foreign language learning, a Copernican step forward in *quality*. Combined with the 25 to 1 ratio of increase in *quantity* of oral practice, the improvement is spectacular. And it can be had for less instructional cost than the traditional teaching.

Before turning to the subject of costs, let us note that the wartime teaching of foreign languages in the armed services created a strong public demand for the ability to *converse* in French, Spanish or other modern language. In contrast, college courses were usually a matter of "silent brooding over the printed page." It was hardly fair to ask the colleges to use the "army method," to limit classes to 10 students, to have them meet 15 hours per week. (The Army

FL 001 927

Language School at the Presidio of Monterey, California, still maintains a student-faculty ratio of 2 to 1 or 3 to 1.) Thanks to small enrollments, some colleges were able to try it. However, the approaching hordes of students will soon put an end to all that, and foreign language instruction will be caught in the middle, between the continuing demand for conversational language and the absolute necessity of making classes much larger than ever.

Providentially, we shall be able to do both of these things. Our *deus ex machina* is an electronic *machina*, the tape recorder. We can combine it with a few more machines such as film and filmstrip projectors and thus multiply the good teacher by means of the language laboratory. In the same process we can increase (if not multiply) his salary and do a better job for our students—all at no increase in cost per student.

Cost and Maintenance

What fee to charge? Purdue makes no charge but it appears that $5 per semester would be a fair fee for students using the laboratory twice a week, as ours do (32 by $0.1268 = $4.06). The amount charged will depend partly on an institution's overhead factor, but a common language laboratory fee is $5.

Instructional cost. Our tabulation does not include instructional salaries, for our laboratory sessions have replaced regular classroom meetings, with the instructor simply meeting his class in another room—the laboratory—twice a week. In this respect our language laboratory is not comparable with a science laboratory, and the instructional costs of the two should not be compared. However, the normal instructional cost of the language laboratory—and therefore of all first-year language instruction held there—probably can be halved at least, by constructing jumbo sized laboratories accommodating 50 or more students. Apparently one instructor can monitor (correct and/or grade) a student in about one minute, on the average. Aided by a student assistant, perhaps a teacher-candidate, to do all chores, the instructor could thus monitor in one hour the number of students to whom he now devotes two hours.

A *must* is a soundproof recording room. Our faculty members make hundreds of recordings every year. Frequently a recording job is ruined by noises from outside or inside the building; it must be started over, perhaps only to be ruined again and again. This waste of valuable time is frustrating and inefficient. We hope soon to purchase a ready-made soundproof room (3 by 5 by 7 feet) for about $1,600. This in turn will free the repair shop for the exclusive use of the technicians, who need to use it uninterruptedly. Certainly the recording room, and perhaps the repair shop, should be air conditioned.

Modern language students record all they say and hear, and later replay it for self-criticism.

Amortization. A 10-year period is only an educated guess; perhaps it should be longer or shorter, depending upon the cost a few years hence of maintenance as opposed to replacements. For example, our present recorders, now in their sixth year of 8 hours a day operation, are apparently indestructible, but the maintenance cost is high. Also, their quality of sound reproduction is inferior to later models.

On the other hand, installation costs and various articles of furniture (such as student booths at $65 each) have a longer expectancy than 10 years. On the whole, we have figured amortization conservatively.

Parts and equipment. The relatively high cost for the early years was caused by original outlay for parts, tools and testing equipment; by misfortunes with a brand new model; and by student technicians who waited for equipment to break down before servicing it.

Labor. Despite such occasional troubles, we are in favor of student technicians because they are more quickly and frequently on the job and they develop a personal interest in it. Also, their services are somewhat cheaper. Our half-time chief technician is a mature student, formerly a naval electronics technician, first class. He directs the routine work of the others, all part-time student workers, and devotes much of his own time to testing and improving the equipment. He has made important savings by purchasing and assembling components. He has upgraded the quality of our equipment and tested manufacturers' samples for the Purdue purchasing office.

Systematic preventive maintenance is essential, not only to save costly repairs but also to avoid breakdowns which demoralize the class. Standard tape recorders are not built for the heavy use of our laboratories, and the cheapest ones are out of the question. Even those in the $250 range are sure to fail occasionally, so 10 per cent of the booths are kept vacant, as standbys. (Repairs are made daily but not hourly.) Although prevention is the best cure, one eight-hour day involving eight students can do things to an instrument intended for occasional use in an office.

The multichannel recorder may provide the solution of these problems. A recent development for industrial use, it probably can be adapted to our purposes. Three 15-channel instruments at the front of the room could replace 45 instruments in student booths; two 30-channel instruments could service 60 booths and enable students to do all that they now do. The purchase price probably would be double what we now pay, but maintenance probably would be reduced to a small fraction. Perhaps a lend-lease or rental plan could be devised for the prototypes.

Use of "visuals." Sliding front panels in the student booths are primarily to enable the students to see the projection screen. Oral language becomes real when can see what we are talking about, in the laboratory as in life situations. Therefore, we use our own sound films, slides, sometimes filmstrips. We have experimented with the opaque projector and even the controlled-speed projection of text readings. Like other experimentally minded departments, we have abandoned the deaf-and-dumb method of language teaching in favor of seeing and hearing and communicating. Audiovisual brings the foreign language and people and country into the classroom—or rather, the laboratory.

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